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# Mapping pathways to adulthood among Finnish university students: Sequences, patterns, variations in family- and work-related roles

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ABSTRACT

The present follow-up study examined the sequences, patterns, and variations in family- and work-related roles during the transition to adulthood among university students. Our aim was to identify typologies of transitional pathways to adulthood across their education, employment, residence, partnership/parenthood histories. The subjects were 182 first-year Finnish university students (mean age = 21) who were followed for 18 years. The Life History Calendar was used to collect data on their education, employment, residence, and partnership/parenthood histories. We also investigated the participants' background variables (gender, age, parents' education, school grades) and their life satisfaction at the end of the follow-up. Six transitional pathways were identified: *Career and family* (24%), *Slow starters* (19%), *Fast starters* (15%), *Fast partnership and late parenthood* (15%), *Career with unsteady partnerships* (15%), and *Singles with slow career* (12%). Further, the results showed that those participants who were on time in their career and family transitions experienced higher life satisfaction than those who postponed these major role transitions.



Transition from adolescence to adulthood is characterized by frequent changes in status, such as leaving the parental home, finishing education and moving to working life, forming a romantic partnership, and becoming parents (Elder & Shanahan, 2007; Erikson, 1968). Making these key transitions is often considered to be the criterion for reaching adulthood. Even though young people follow various transitional pathways in different life domains (Elder & Shanahan, 2007), most previous studies have concentrated on only one of these transitions at a time, such as to a transition to parenthood or a move from school to work (Dubow, Huesmann, Boxer, Pulkkinen, & Kokko, 2006; Kokko, Pulkkinen, Mesiäinen, & Lyyra, 2008; Salmela-Aro, Saisto, Nurmi, & Halmesmäki, 2000). Our aim in the present longitudinal study is to go beyond the limitations of most published studies by tackling the question of pathways to adulthood through a holistic approach (see also Robette, 2010), which considers the entire trajectory as a meaningful conceptual unit, rather than in its atomistic pieces (Billari, 2005). We followed first-year university students over 18 years during their transition to adulthood, through their life history calendars. The major objective was to identify the kind of transitional pathways university students follow with regard to the five life domains of residence, partnership, parenthood, education and employment. We also investigated whether the subjects following these various pathways differed in terms of age, gender, parents' education, and school grades. On the basis of developmental task theory (Havighurst, 1948), throughout the life span individuals progress through several stages in which they must cope with age-specific challenges and demands or "developmental tasks", which are embedded in a given society or cultural context; successful achievement of these key developmental tasks leads to satisfaction with life, while failure leads to unhappiness. Consequently, we

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also investigated whether the subjects following these pathways differed in terms of their subsequent life satisfaction.

## 1. Patterns of transition during young adulthood

Individuals' life-span development is characterized by changing demands, roles and experienced life events (Baltes, 1997; Elder, 1985; Elder, Johnson, & Crosnoe, 2003), which constitute differing developmental environments for people of various ages. These age-graded environments have been conceptualized in many different ways, e.g., in terms of developmental tasks and related challenges (Erikson, 1959; Havighurst, 1948; Oerter, 1986), social timetables (Kohli & Meyer, 1986), role transitions (Elder, 1985), constraints (Neugarten, More, & Lowe, 1965; Settersten & Hagestad, 1996), and institutional tracks (Mayer, 1986). Havighurst (1948) claimed that the eight major developmental tasks for young adults (from ages 19 to 30 years) – develop a stable partnership, learn to live with the partner, establish an independent household, establish a family, care for a family, start an occupation or career, become integrated in a social group and that individuals thereby assume civic and social responsibility. Havighurst's concept is unique in that it integrates challenges from several domains, stresses the individual's activity in integrating these demands and links the developmental tasks of various life phases. The reason why such age-related normative and institutional structures are important is that they include a variety of demands, challenges and opportunities for individual action, creating predictable, socially recognized roadmaps for human lives (Hagestadt & Neugarten, 1985). According to life-course theory (Elder, 1985), transitions denote changes in status or social roles, such as leaving the parental home, leaving university, entering into full-time employment, getting married, and having children, and they are embedded in pathways that give them form and meaning. Pathways, in turn, evolve over an extended period of time, and capture the sequences and duration of particular roles and experiences.

The third decade of life is a period during which individuals are faced with more transitions and life decisions than at any other stage (Caspi, 2002; Grob, Krings, & Bangerter, 2001). Rindfuss (1991) describes the period between the ages of 18 and 30 as demographically dense in that many transitions take place then, including moving from education to work, starting a career, initiating an intimate relationship, and starting a family (Caspi, 2002; Elder & Shanahan, 2007; Shanahan, 2000). These transitions and role changes are significant markers of the transition to adulthood (Hogan & Astone, 1986), and signal the achievement of adult status (Osgood, Ruth, Eccles, Jacobs, & Barber, 2005; Shanahan, 2000). Within a given society, pathways through life are shaped by a set of formal and normative timetables, which are reflected in social expectations concerning the appropriate times and ages for important life transitions (Elder, 1994). Normative timetables or 'scripts' provide models for both role behavior and the linkages of roles and pathways over time (Buchmann, 1989). The life course is thus socially structured by a set of formal or institutionalized rules. However, in recent decades there have been major changes in the movement from university to work, labour-market opportunities, and transition strategies (Arnett, 2000; see also Bynner, 2005; Salmela-Aro & Helve, 2007). The process from education to settling into working life is now often prolonged and discontinuous rather than smooth and quick, and has been pushed back from the early to the late twenties or even into the early thirties (Quintini, Martin, & Martin, 2007; Shanahan, 2000). There have also been changes in family structure. For example, young adults marry many years later today than in the past, and parenthood is often postponed (Arnett, 2000; Salmela-Aro & Helve, 2007). According to Arnett (2000), sociocultural factors in modern industrialized societies have changed considerably over the past 40 years; most individuals are increasingly postponing many of the young adults' developmental tasks outlined by Havighurst, for example, marriage and parenthood (Shanahan, 2000), leaving home (Cherlin, Scabini, & Rossi, 1997) and having a steady, full-time job (LeBlanc & Wolff, 2006). Overall, pathways into adult life have become more de-standardized, flexible, heterogeneous and differentiated. Instead of following a single, uniform passage, young people take many different routes, some moving more slowly and others following a more traditional pathway with fast transitions (Jones, 2002). This study investigates the transitional pathways to adult life among a group of Finnish university students.

## 2. Sequences, patterns and variations in family- and work-related roles

The life course does not proceed stage by stage, but is characterized by the interplay of multiple interconnected role transitions that vary considerably from one individual to another (Levinson, 1986; Macmillian & Eliason, 2003). Given the current consensus that we need to learn more about how various transitions weave together in people's lives (Elder, 1985; Shanahan, 2000), it is of interest to examine how the role transitions experienced in differing life domains are associated and structured. For example, the transition from university to work takes place as a complex set of consecutive events that are interconnected with transitions in other domains (Gallie, 2000). Apart from finishing university and starting to work, young people also face the challenge of leaving the parental home, as well as getting married and becoming a parent.

Despite the fact that theories of life-span development have been elaborated for several decades, empirical research on the pathways to adulthood simultaneously in multiple life domains dates back only to recent years. Drawing on data from the US, Garrett and Eccles (2009) found five clusters among 18-year olds: early starters, late bloomers, well-rounded adolescents, workers, and daters. In another study, Osgood et al. (2005) identified six distinct clusters: fast starters, parents without a career, educated singles, educated parents, working singles, and slow starters. Martin, School, and Ross (2008), in turn, who analyzed two British cohorts, identified four pathways to adulthood between the ages of 16 and 29: traditional

families, career orientation without children, disadvantaged families and slow starters. The most turbulent phase in respect of status change appears to be around the age of 25, and by thirty the majority of young adults have finished school, joined the labour force and married (Fussell & Furstenberg, 2005). However, in most previous studies, with the exception of, for example, Martin et al. (2008), the identified clusters are based on only measurement at one point in time. Consequently, the aim of this study is to examine longitudinal transitional pathways to adulthood among university students simultaneously in various life domains, focusing the pathway as a whole, as a meaningful conceptual unit, rather than its atomic parts (Billari, 2005). In order to do this, we identify clusters of pathways across four, key, life domains: residence, partnership, parenthood, and career (educational and employment). We have followed, for 18 years, a cohort born around the year 1970 and beginning university studies in social sciences in 1991.

## 3. Patterns of transition during young adulthood and life satisfaction

According to Havighurst (1953) and the life-span model of motivation (Nurmi, 2004; Salmela-Aro, 2009; Salmela-Aro, Aunola, & Nurmi, 2007), achieving age-graded developmental tasks on-time is adaptive and contributes to happiness and success with later tasks and satisfaction with life (Salmela-Aro & Nurmi, 1997; Wrosch & Freund, 2001), while failure leads to unhappiness (Havighurst, 1948) and depressive symptoms (Salmela-Aro & Nurmi, 1997). In line with this pattern, Schulenberg, Bryant, and O'Malley (2004) found that successful tackling of developmental tasks in a sample of young adults (aged 18–26) was closely tied to high levels of self-reported well-being. In two longitudinal studies in Germany, a positive relation was found between an adolescent's progress in task attainment and later self-reported psychological well-being (Brunstein, Schultheiss, & Maier, 1999; Pinquart & Silbereisen, 2004). Further, in a US study, declines in developmental status were associated with lower self-esteem (Davis and Stoep, 1997). A study of Lyubomirsky, King, and Diener (2005) showed further a bi-directional association between happiness and success: success made people happy, but happiness also engenders success. In addition, the large body of literature has revealed that people who are married are more satisfied with their life compared to singles or the divorced (Diener, Gohm, Suh, & Oishi, 2000; Diener & Seligman, 2002). In the present study, we examined the extent to which various pathways are related to subsequent life satisfaction. We assumed, on the basis of earlier findings, that transitional pathways characterized by on-time achievement of age-graded developmental tasks would result in higher life satisfaction than those pathways characterized by off-time and postponed transitions, and being single or divorced.

## 4. Transitional patterns among Finnish young adults

In Finland, the mean age of women when they bear their first child is 27.9 years, and among men the age is 29.9 (www.findikaattori.fi). The maternal employment rate is high (76%); after the child is one year old, most mothers continue full-time work, and the mean fertility is 1.9 children. In Finland it is rare to be employed part-time rather than full time (e.g., Schoon, Hansson, & Salmela-Aro, 2005). The mean age for first marriage is 28 for women and 30 for men. During recent years, there has been a clear postponement of marriage. Concerning the age period of 20–34, 21% are single, 27% are married, 28% cohabiting, 18% living in parents home and 6% other (www.oecd.org). However, in accordance with the Nordic welfare system, students are entitled to social-security support if they move away from their parents' home when they begin university studies; consequently postponement of independent living is rare, and most leave home early.

One distinctive feature of the Finnish education system is that tuition is free; the universities have entrance examinations; students enter to specific major; and M.A. graduates are, on average, older – at around 25–29 years – than their American counterparts, for instance. The cohort studied in the present investigation grew up in an era of increasing instability and insecurity – the Crisis Decades (Hobsbawn, 1995) – characterized by major recession and a sharp increase in unemployment, especially among young people. Other dramatic changes included a dramatic increase in cohabitation as a precursor or alternative to marriage, a rise in divorce rates, and the delay of parenthood (Ferri & Smith, 2003), which was postponed or even rejected in some cases (Coleman, 2000).

## 5. Research questions

(1) What proportion of first-year university students in Finland identified patterns of key life transitions in the domains of residence, partnership, parenthood, graduation from the university, and employment during the 18-year follow-up? On average, at what age and in what order do they experience the transitions?
(2) What kinds of transitional pathways to adulthood do these former university students follow in terms of the transitions they face in various life domains (partnership, parenthood, graduation from university and employment)?
(3) How do the university students who experience the various transitional pathways differ in terms of background factors (i.e., gender, age, SES, school grades)?
(4) Is adult life satisfaction related to the different kinds of transitional pathways among a sample of former university students in Finland?

## 6. Method

### 6.1. Participants and procedure

This study is part of the ongoing Helsinki Longitudinal Student Study (HELS study; Authors). The students who participated to the study on voluntary basis were 182 (40 men, 142 women) undergraduates who began their studies at the University of Helsinki in 1991 when the data collection began. They were born in or around 1970, their

mean age at the beginning of the follow-up being 20.76 years, *SD* = 1.49, ranging from 18 to 25. The majors they studied were (3; 1.7% did not answer) Psychology (23; 12.8%), History (10; 5.6%), Finnish (23; 12.8%), French (9; 5.0%), English (19; 10.6%), Geography (21; 11.7%), Biology (37; 20.6%), Sociology (18; 10.0%) and Economics (19; 10.6%).

Originally a total of 304 university undergraduates were investigated during the autumn term of their first study year (1991). All the students were taking introductory courses in one of the subjects, Biology, Geography, Economics, English, Finnish, French, History, Psychology, and Sociology. All who were present when the data collection began, were furnished with preliminary information about the study and asked if they would consent to participate. None of them refused. They were then asked to give some background information (e.g., gender, parents' education). These measures were completed during one classroom period. Eighteen years later (2008) the participants in the original sample were contacted and asked to complete the Life History Calendar (LHC; adapted from Caspi et al., 1996). Those who did not respond were contacted by telephone. A total of 207 of the original participants returned the questionnaire (retention rate 68%). Of the dropouts at this measurement point, 3 had died, 5 refused to participate, 30 had no known address, and 12 had moved abroad. Attrition analyses revealed no statistically significant differences between the drop-outs and non-dropouts in terms of age, gender, or parental education at the beginning of the study.

The sample of the present study comprises subjects from the original sample who met the following two criteria: first, they had to have filled in the LHC 18 years after the first measurement ($N = 207$), and secondly, because we were interested in young adulthood, they had to be under the age of 25 at the first measurement point (excluded were 25 persons). Consequently, the sample for the present study comprises 182 participants (40 men and 142 women). The sample was reasonably representative of the university student population in Finland in respect of ethnicity and socio-economic status. Women were over-represented in the study, given that females are the majority of students in the humanities and social sciences from whence most of the participants were drawn.

### 6.2. Measures

The *Life History Calendar* (Caspi et al., 1996). The participants filled in the Life History Calendar (LHC), adapted from the Caspi et al. (1996) measure in 2008, retrospectively reporting on key life events during the years 1991–2008 in terms of residence, partnership, parenthood and career. Various events (the rows in the LHC), such as family events (i.e., getting married, getting divorced, having children), were charted from 1991 to 2008 (the columns in the LHC). For each life event, the participants indicated the year it started, its continuation (if relevant) and the year it finished. Thus, through the LHC, the occurrence, timing and duration of each life event and situation were (retrospectively) recorded annually between 1991 and 2008 throughout the 18 years of follow-up.

A summary of the life situations (i.e., states) included in the present study within each of the four life domains, that is, residence, partnership, parenthood and career is given in Table 1. These states were analyzed in further unidimensional sequence analyses. The following life domains with the respective following simplified states were used in the multidimensional sequence analyses: (1) Partnership (single S, partnership P, out-of-partnership D), (2) parenthood (no children NC, having children C), and (3) career (studying FS, working W, other studying/working situation E).

*Background factors*. The background factors were measured at the beginning of the follow-up in 1991. *Gender* was coded thus: 1 = female, 2 = male. The participants' *ages* at the beginning of the follow-up were calculated from their birth year. Paternal level of education in 1991 was chosen as an indicator of *family SES*. The grade point average (GPA) at the end of senior high school, in turn, was used as an indicator of *school grades*.

*Life satisfaction*. At the end of the follow-up, in 2008, life satisfaction was assessed on the five-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The items (e.g., "*I am satisfied with my life*", "*In most ways my life is close to my ideal*", "*The conditions of my life are excellent*.", "*So far I have gotten the important things I want in life*.", "*If I could live my life over, I would change almost nothing*.") were rated on a seven-point Likert-type scale ranging from one (*I totally disagree*) to seven (*I totally agree*). A mean was calculated from all five items. The Cronbach's alpha reliability was .91.

### 6.3. Analysis strategy

Life histories are traditionally analyzed in terms of events marking transitions from one status to another. However, event-history methodology is not very suitable for multidimensional data when the number of states, and

**Table 1**
A summary of the life situations (i.e., states) from the Life History Calendar (Caspi et al., 1996) investigated in the present study.

| Life domain | Life situation |
|---|---|
| Residence | Living in the parental home (PH)<br>Living in rented or other not-owned accommodation (R)<br>Owner occupation (O)<br>Other living arrangements (EL) |
| Partnership | Being single (S)<br>Living in a partnership: Co-habitation or marriage (P)<br>Living out of partnership: Separated, divorced or widowed (D) |
| Parenthood | Having no children (NC)<br>Having 1–2 children (FC)<br>Having 3 or more children (MC) |
| Career | Studying (FS)<br>Studying and working (PS)<br>Working (W)<br>Other (e.g., unemployment, maternity leave) (E) |

thereby the number of transitions, becomes very large. In the present study we used sequence analysis, a data-mining method that was initially developed in bioinformatics to analyze molecular sequences as texts (Durbin, Eddy, Krogh, & Mitchison, 1998). Through pair-wise alignment of sequences by inserting, deleting or substituting an element in the sequence the aim is to find typologies of sequences without making assumptions about the underlying probability models that have generated the data. Applied to life-course analysis, this means aligning two life sequences by inserting, deleting or substituting a life status to transform one life sequence to another (McVicar & Anyadike-Danes, 2002). Categorical life-history data could therefore be interpreted as short narratives of life experiences.

Optimal matching (OM) is the most common alignment algorithm used in the social science applications of sequence analysis (e.g. Abbott, 2001; Abbott & Forrest, 1986). It proceeds as follows: distance between two life sequences is calculated element-wise by choosing the alignment which requires the minimum cost of inserting, deleting or substituting a life status to transform one sequence to another. The distance matrix of all sequences is then subjected to a cluster analysis to find distinctive patterns of life trajectories.

The cost of substituting a life status with another depends on the 'closeness' of the two life statuses (e.g., Anyadike-Danes & McVicar, 2010). As the definition of closeness of life statuses entirely determines the information in the distance matrix, and thus in further analysis based on the matrix, we investigated the effects of several cost matrices in our analyses. In a data-driven approach, the costs are based on the observed transitions between the states. The more transitions are observed, the closer the two states are considered to be. Theory-driven costs, in turn, are based on the particular research question at hand. In our case it is developmental process to adulthood, comprising a series of developmental tasks to be accomplished. Therefore a cost matrix should distinguish between the attained levels of the developmental tasks and other states. In our study of university students, these tasks are residential independence from the childhood home, commitment to a more-or-less stable partnership, parenthood and financial independence, measured by entering full-time working life after university studies. Since our aim was to analyze the attainment of the developmental tasks in several life domains simultaneously, we applied the principle suggested by Gauthier, Widmer, Bucher, and Notredame (2010) to first define the substitution cost of each life domain separately and then use the average cost across life domains in the multi-domain analysis.

The theory-driven costs were defined as follows. A cost of 2 was given between the following states: single-partnership, no children-children, full-time studying-full-time employment. Although 'not living in a partnership' is common to the states of being 'single' and 'divorced', from our developmental viewpoint these states are distant and from the transition viewpoint even impossible, and a cost of 3 was given. In contrast, in the career domain we defined a lower substitution cost of 1 for the status 'else' with all others statuses, reflecting the diversity of this status in different phases of the process to adulthood. It comprises states such as maternity leave, unemployment, student exchange year, and so on. Various values for inserting or deleting a life status (the indel cost) were considered. As we wanted to retain the timing of transitions, the insertion/deletion (indel) cost of 2 was finally chosen, which is comparable with the cost of a developmental transition. The results based on theoretically determined cost matrices were compared with those based on data-driven cost matrices. The theoretically determined substitution cost matrices are presented in Table 2.

For multidimensional sequence analyses, the domain-specific sequences were combined at each year to indicate, for example, the parallel status 'NC/S/FS' corresponding to 'no children/single/full-time study'. We used Ward's algorithm to form a typology of sequence clusters of sequences from the distance matrix. At each step, the algorithm joins the two clusters which minimize the within-cluster variance. The choice of the number of clusters was based on consecutive pseudo ANOVA tests in which the cluster indices were permuted, as well as on the proportion of explained variance by the clusters based on the developmental tasks, and on visual evaluation of the dendrograms. Clarity of interpretation determined the final decision in cases in which the contribution of a new cluster was small. Although pseudo tests do not correspond exactly to more traditional linear ANOVA models, they are useful for comparing cluster solutions. More careful comparison and description of the clusters are given in Table 5, where the most and least common states and transitions in each clusters are displayed, and in Fig. 5b where the cluster-specific entropies are shown.

We started by investigating descriptives of each of the four life domains: partnership, parenthood, residence and career (education and employment) separately. Table 3 shows the dynamics of each category throughout the follow-up. Various life domains were then analyzed jointly to cover combinations of partnership, parenthood and career domains at the same time (see also Billari, 2005; Pollock, 2007). The living conditions, called 'residence', provided only a little additional information compared to the increasing complexity of the multiple-domain analysis, and was excluded from the multidimensional cluster analyses.

Finally, the individual-specific cluster index of the combined analysis was used to compare the clusters in terms of background factors (i.e., gender, age, parents' education, school grades) and life satisfaction at the end of the follow-up.

**Table 2**
Self-determined cost matrices for partnership, parenthood, and career.

Partnership

| | S | P | D |
|---|---|---|---|
| S | 0 | 2 | 3 |
| P | 2 | 0 | 2 |
| D | 3 | 2 | 0 |

Parenthood

| | NC | C |
|---|---|---|
| NC | 0 | 2 |
| C | 2 | 0 |

Career

| | FS | W | E |
|---|---|---|---|
| FS | 0 | 2 | 1 |
| W | 2 | 0 | 1 |
| E | 1 | 1 | 0 |

*Note*. S: single; P: partnership; D: separated/divorced/widowed; C: having children; NC: having no children; FS: full-time studying; W: working; E: other studying/working situation.

**Table 3**
State distributions for unidimensional life domains of residence, partnership, parenthood and career from year 1991 to 2008, $N = 182$.

| State | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Residence (% of participants) | | | | | | | | | | | | | | | | | | |
| Family home | 35 | 23 | 16 | 10 | 7 | 4 | 3 | 3 | 2 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Rented | 60 | 71 | 76 | 80 | 81 | 81 | 79 | 73 | 67 | 58 | 54 | 50 | 46 | 37 | 32 | 30 | 26 | 27 |
| Owner occupation | 2 | 2 | 3 | 6 | 9 | 10 | 14 | 20 | 27 | 34 | 40 | 47 | 51 | 59 | 64 | 66 | 69 | 69 |
| Other | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Partnership (% of participants) | | | | | | | | | | | | | | | | | | |
| Single | 80 | 71 | 65 | 57 | 51 | 47 | 40 | 34 | 30 | 24 | 20 | 18 | 15 | 13 | 13 | 11 | 11 | 11 |
| Partnership | 18 | 24 | 26 | 35 | 41 | 42 | 47 | 55 | 60 | 66 | 64 | 69 | 74 | 76 | 75 | 77 | 76 | 75 |
| Divorced | 2 | 5 | 9 | 8 | 8 | 11 | 13 | 12 | 10 | 10 | 15 | 13 | 11 | 11 | 13 | 12 | 13 | 14 |
| Parenthood (% of participants) | | | | | | | | | | | | | | | | | | |
| No. of children | 99 | 99 | 97 | 95 | 91 | 87 | 83 | 76 | 72 | 68 | 61 | 53 | 46 | 40 | 36 | 34 | 32 | 31 |
| 1–2 children | 1 | 1 | 3 | 5 | 9 | 13 | 17 | 24 | 27 | 30 | 36 | 41 | 45 | 48 | 47 | 46 | 47 | 48 |
| ≥3 children | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 6 | 10 | 12 | 16 | 21 | 21 | 21 |
| Career (% of participants) | | | | | | | | | | | | | | | | | | |
| Studying | 82 | 83 | 86 | 80 | 66 | 56 | 40 | 24 | 10 | 9 | 5 | 5 | 4 | 3 | 2 | 3 | 3 | 2 |
| Study and work | 10 | 12 | 12 | 14 | 20 | 20 | 17 | 13 | 12 | 9 | 5 | 5 | 4 | 4 | 3 | 2 | 1 | 2 |
| Working | 1 | 3 | 1 | 3 | 8 | 19 | 38 | 53 | 69 | 70 | 80 | 73 | 70 | 75 | 83 | 80 | 85 | 86 |
| Other | 7 | 2 | 1 | 3 | 5 | 4 | 5 | 10 | 9 | 11 | 10 | 16 | 21 | 18 | 12 | 15 | 11 | 10 |

The TraMiner package of the R statistical program (mining sequence data in R, version, 1.6.2. Gabadinho, Ritschard, Studer, & Muller, 2010) was used for the statistical analyses.

## 7. Results

### 7.1. Descriptive results for four life domains separately

The results are reported in the following order. Descriptive results for the life domains of residence, partnership status, parenthood, and career (educational and employment) are given separately in Table 3. The main results focus on the multidimensional analyses and are displayed in Tables 4–6 and Figs. 3–5.

*Residence*. By the end of the 18-year follow-up practically all (98%) of the participants had moved away from the parental home (Table 3), many doing so rather soon after beginning their studies, usually to a rented flat. At the baseline (1991, mean age = 21), 35% still lived in their childhood home, and 60% lived in rented accommodation. At end of the follow-up more than two thirds were living in their own apartment. In Finland, buying a flat could be interpreted as a symbol of independence and adulthood.

*Partnership*. A total of 89% of the participants formed a partnership (co-habitation or marriage) at least once during the 18-year follow-up, and 11% remained single with no recorded partnerships. When they began their university (year 1991, mean age = 21), a total of 80% were still single, 18% lived in a partnership and 2% were separated or divorced (Table 3). At the end of follow-up (2008, mean age = 38), 75% lived in a partnership, 11% had remained single and 14% were divorced/separated. On average, the participants were single for six years before their first partnership.

**Table 4**
Cluster-specific pseudo ANOVA tests to determine the number of clusters in the case of multidimensional life sequences.

| | Theory-driven cost matrices (fixed costs, see details from analysis strategy, indel = 2) | | | | | |
|---|---|---|---|---|---|---|
| | Two clusters | Three clusters | Four clusters | Five clusters | Six clusters[a] | Seven clusters |
| Explained *SS* (*df*) | 748.06 (1) | 1053.16 (2) | 1240.94 (3) | 1448.41 (4) | 1574.52 (5) | 1650.45 (6) |
| Residual *SS* (*df*) | 2746.06 (180) | 2440.96 (179) | 2253.19 (178) | 2045.71 (177) | 1919.60 (176) | 1843.67 (175) |
| Total *SS* (*df*) | 3494.12 (181) | 3494.12 (181) | 3494.12 (181) | 3494.12 (181) | 3494.12 (181) | 3494.12 (181) |
| Pseudo *F* | 49.03, $p < .001$ | 38.61, $p < .001$ | 32.68, $p < .001$ | 31.33, $p < .001$ | 28.87, $p < .001$ | 26.11, $p < .001$ |
| Pseudo $R^2$ | .21 | .30 | .36 | .41 | .45 | .47 |
| Pseudo *T* | 0.94, $p = .001$ | 0.15, $p = .40$ | 0.41, $p = .15$ | 5.68, $p < .001$ | 5.84, $p < .001$ | 4.65, $p < .001$ |
| | Data-driven cost matrices (transition probabilities, indel = 2) | | | | | |
| | Two clusters | Three clusters | Four clusters | Five clusters | Six clusters | Seven clusters |
| Explained *SS* (*df*) | 676.46 (1) | 978.48 (2) | 1172.44 (3) | 1335.23 (4) | 1437.16 (5) | 1506.03 (6) |
| Residual *SS* (*df*) | 2715.86 (180) | 2413.84 (179) | 2219.88 (178) | 2057.09 (177) | 1955.15 (176) | 1886.29 (175) |
| Total *SS* (*df*) | 3392.32 (181) | 3392.32 (181) | 3392.32 (181) | 3392.32 (181) | 3392.32 (181) | 3392.32 (181) |
| Pseudo *F* | 44.83, $p < .001$ | 36.28, $p < .001$ | 31.34, $p < .001$ | 28.72, $p < .001$ | 25.87, $p < .001$ | 23.29, $p < .001$ |
| Pseudo $R^2$ | .20 | .29 | .35 | .39 | .42 | .44 |
| Pseudo *T* | 1.11, $p < .001$ | 0.13, $p = .38$ | 5.43, $p < .001$ | 5.12, $p < .001$ | 3.86, $p < .001$ | 4.57, $p < .001$ |

*Note.* Pseudo *F*: compares the sum of the squares explained by the cluster solution with the total sum; $R^2$: % of total variability explained; pseudo *T*: testing inequality of within cluster variability; $H_0$: within-cluster variability is equal across the clusters.

[a] Chosen as the final solution.

**Table 5**
The Clusters of multidimensional life histories, $N = 182$.

| Cluster and its characterization<br>State combinations | Static description:<br>Most common state | Dynamic description:<br>Typical state transitions[T] | Dynamic description:<br>Atypical state transitions[AT] |
|---|---|---|---|
| Cluster 1 (15%, $n = 28$): "*Fast starters*" | | (NC/P/FS > C/P/FS) | (NC/D/W > NC/P/W) |
| Early to steady partnership | C/P/W | (NC/P/FS > C/P/FS)–(C/P/E > C/P/W) | (NC/S/FS > NC/S/W) |
| Early from studying to working | | (NC/P/FS > C/P/FS)–(C/P/FS > C/P/W) | (NC/S/FS)–(NC/S/FS > NC/S/W) |
| Early to parenthood | | (NC/P/FS > C/P/FS)–(C/P/W > C/P/E) | (NC/S/W > NC/P/W) |
| | | | (NC/S/FS)–(NC/S/W > NC/P/W) |
| Cluster 2: (15%, $n = 27$): | | | (NC/S/FS > NC/S/W) |
| "*Fast partnership and late parenthood*" | NC/P/FS | | (NC/S/FS)–(NC/S/FS > NC/S/W) |
| Early partnership | NC/P/W | | (NC/S/W > NC/P/W) |
| Late parenthood | C/P/W | | (NC/S/FS)–(NC/S/W > NC/P/W) |
| Cluster 3 (24%, $n = 43$): "*Career and family*" | | | |
| No partnership during university studies | NC/S/FS | | (NC/D/W > NC/P/W) |
| Steady partnership soon after graduation | C/P/W | | (NC/P/W > NC/D/W) |
| After graduation some time at work, then children | | | |
| Cluster 4 (15%, $n = 28$): | | | |
| "*Career and unsteady partnership*" | NC/P/FS | (NC/D/W > NC/P/W) | (NC/S/FS > NC/S/W) |
| Relatively early to partnership but many partnerships | NC/P/W | (NC/P/W > NC/D/W) | |
| Relatively early from studying to working | NC/D/W | | |
| Working long and only then having children | | | |
| Cluster 5 (19%, $n = 34$): "*Slow starters*" | | (NC/S/FS > NC/S/W) | (NC/P/FS > C/P/FS) |
| Prolonged studies at university | NC/S/FS | (NC/S/FS)–(NC/S/FS > NC/S/W) | (NC/D/W > NC/P/W) |
| Late to partnership | NC/S/W | (NC/S/W > NC/P/W) | |
| Children late if at all | NC/P/W | (NC/S/FS)–(NC/S/W > NC/P/W) | |
| Cluster 6 (12%, $n = 22$): "*Singles with slow career*" | | | |
| Singles during the whole follow-up | NC/S/FS | (NC/S/FS > NC/S/W) | |
| No children | NC/S/W | (NC/S/FS)–(NC/S/FS > NC/S/W) | |
| Prolonged transition from studying to work | | | |

*Note* 1. C: having children; NC: having no children; S: single; P: partnership; D: separated/divorced/widowed; FS: full-time studying; W: working; E: other studying/working situation. *Note* 2. *T*: *typical based on Pearson residuals*; *AT*: *atypical based on Pearson residuals* (*typical*: *residual* $< -2$; *atypical: residual* $> 2$).

*Parenthood*. By the end of the follow-up (mean age of 38) almost one third of the participants (31%) still had no children. Parenthood occurred relatively late on average: nine years after the first measurement (1999, mean age = 29) less than one third had children. Of the 69% of the sample who eventually had children by the end of the follow-up, most (48%) had one or two, and 21% had three or more children.

*Career*: *education and employment*. A total of 90% of the participants eventually graduated from university. Almost all (96%) were working at least two consecutive years indicating a more permanent participation in working life. When entering university, 82% of the participants studied full-time, and 10% were also part-time working. At the end of follow-up, 86% were working, and 10% were classified as doing something other than studying or working (e.g., were unemployed and on maternal leave).

*Diversity in the dynamics of life domains*. Diversity in the life sequences was measured by means of Shannon entropy (see also Billari, 2001; Fussell, 2005) which is zero when all cases have a similar life status at a particular year (see Fig. 1). In other words, entropy values close to zero signal low diversity, whereas values close to one signal high diversity and relatively equal distribution across life statuses at particular times. One extreme is in the *parenthood* domain in that almost all participants started from the same 'no children' state. Entropy increased to almost one by the end of the follow-up indicating relatively equal distribution over the three states (no children, 1–2 children and 3 or more children). For *partnership*, entropy was highest around six years after starting university, indicating that graduation and transition to working life caused additional "turbulence", which then leveled off as the majority of participants ended up living in a partnership. The same applied to *career* path. With regard to

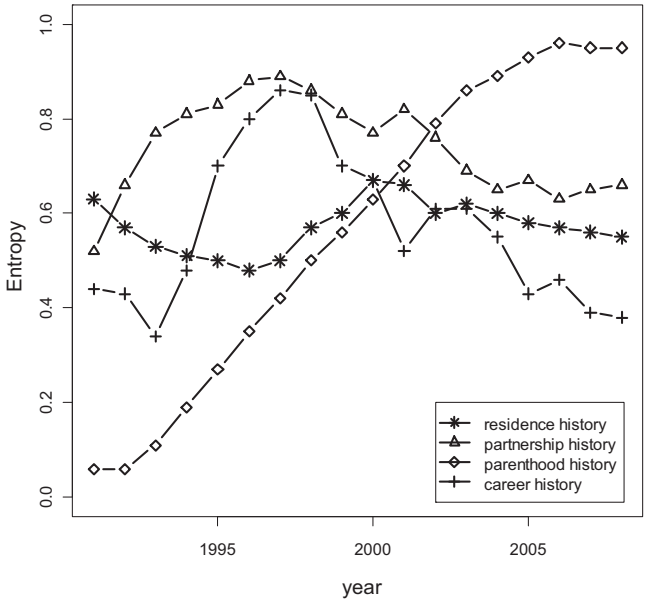


**Fig. 1.** Diversity in life sequences covering residence, partnership, parenthood, and career.

**Table 6**
The clusters of multidimensional life histories, $N = 182$.

| Cluster name | Background factors | | | | | | Outcome variable | |
|---|---|---|---|---|---|---|---|---|
| | Gender (%) | Age[a] | | GPA[a] | | Fathers' education[a] (%) | Life satisfaction[b] | |
| | | *M* | *SD* | *M* | *SD* | | *M* | *SD* |
| Cluster 1 (15%, $n = 28$): "*Fast starters*" | Females (75%)<br>Males (25%) | 21.54 | 1.62 | 8.61 | 0.75 | Elementary school (11%)<br>Comprehensive school (0%)<br>Vocational school (18%)<br>Upper secondary education (4%)<br>College (25%)<br>University (43%) | 5.01 | 1.35 |
| Cluster 2: (15%, $n = 27$): "*Fast partnership and late parenthood*" | Females (85%)<br>Males (15%) | 20.74 | 1.38 | 8.76 | 0.62 | Elementary school (22%)<br>Comprehensive school (11%)<br>Vocational school (4%)<br>Upper secondary education (0%)<br>College (19%)<br>University (44%) | 5.56 | 0.89 |
| Cluster 3 (24%, $n = 43$): "*Career and family*" | Females (77%)<br>Males (23%) | 20.55 | 1.43 | 8.90 | 0.61 | Elementary school (10%)<br>Comprehensive school (5%)<br>Vocational school (17%)<br>Upper secondary education (5%)<br>College (17%)<br>University (46%) | 5.63 | 1.04 |
| Cluster 4 (15%, $n = 28$): "*Career and unsteady partnership*" | Females (79%)<br>Males (21%) | 20.61 | 1.47 | 8.80 | 0.65 | Elementary school (26%)<br>Comprehensive school (4%)<br>Vocational school (11%)<br>Upper secondary education (0%)<br>College (19%)<br>University (41%) | 4.66 | 1.43 |
| Cluster 5 (19%, $n = 34$): "*Slow starters*" | Females (74%)<br>Males (26%) | 20.21 | 1.27 | 8.77 | 0.59 | Elementary school (22%)<br>Comprehensive school (6%)<br>Vocational school (6%)<br>Upper secondary education (9%)<br>College (19%)<br>University (38%) | 4.99 | 1.26 |
| Cluster 6 (12%, $n = 22$): "*Singles with slow career*" | Females (82%)<br>Males (18%) | 21.18 | 1.53 | 8.80 | 0.71 | Elementary school (23%)<br>Comprehensive school (0%)<br>Vocational school (9%)<br>Upper secondary education (5%)<br>College (27%)<br>University (36%) | 4.07 | 1.48 |

[a] Age and family SES in 1991 (beginning of follow-up), GPA at the end of senior high school.
[b] Life satisfaction in 2008 (end of follow-up).

*residence*, the entropy level remained average during the entire follow-up. Two thirds of the participants had moved from the parental home at baseline, and changes in status were mainly taking place from renting to owner housing.

### 7.2. Patterns of life transitions in several life domains: multidimensional pathways

Our main aim was to examine the interdependence among the life domains across the 18-year follow-up and thereby to investigate distinct pathways to adulthood. We carried out multidimensional sequence analyses by combining the following life domains with somewhat more simplified classifications than in descriptive analyses for different life domains: (1) partnership (single, in a partnership, out-of-partnership), (2) parenthood (children, no children), and (3) career (studying, in full-time employment, other). Fig. 2 shows the state distribution plots for the multidimensional life sequences. Most of the participants (80%) started out as single and studying full-time, although some 20% were already living in a partnership in 1991 (mean age = 21). Five years later (1996, mean age = 26) the proportion of those living in a partnership had risen to 42%, and seven years later (1998, mean age = 28) 25% had a family with children. There was, however, considerable variation in the life situations.

### 7.3. Clusters of multidimensional life sequences

The cluster analyses of multidimensional life sequences were carried out both by using data-driven cost matrices (transition probabilities) and theory-driven cost matrices (see detailed description from the analysis strategy). The dendrograms in both cases suggested between four and six clusters depending on the level of detail of the pathways. The results of consecutive pseudo ANOVA tests to determine the number of clusters are presented in

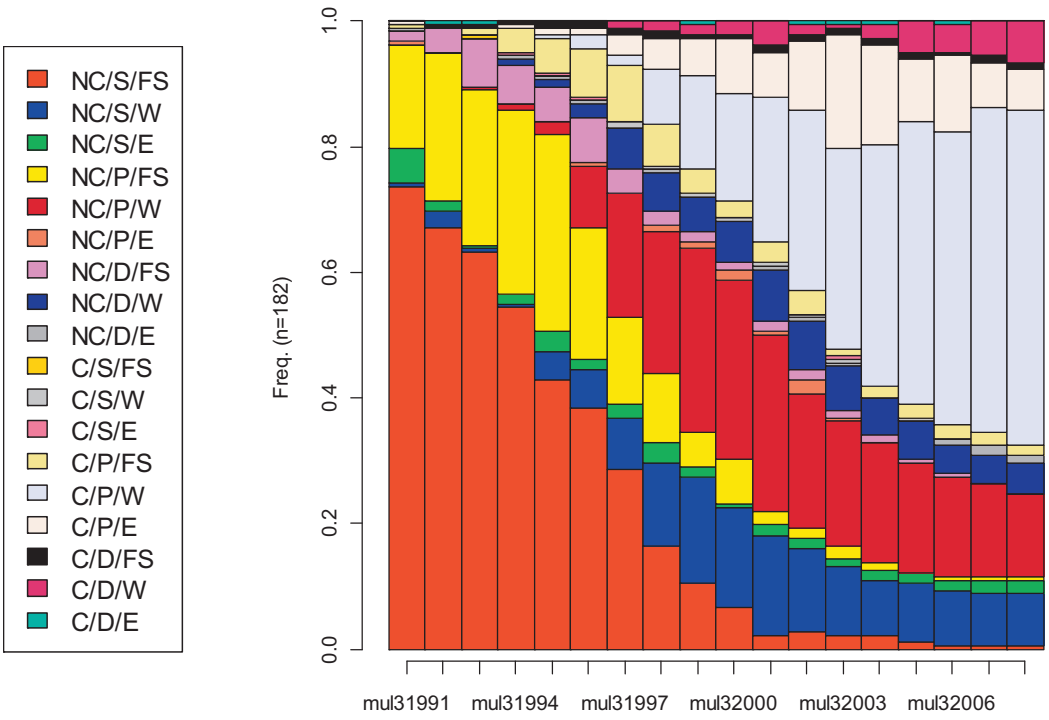


**Fig. 2.** State distribution plots for multidimensional life sequences (partnership and parenthood and studying/employment) from 1991 to 2008. *Note*. NC/S/FS: no children/single/full-time studying; NC/S/W: no children/single/working; NC/S/E: no children/single/other study or work situation; NC/P/FS: no children/partnership/full-time studying; NC/P/W: no children/partnership/working; NC/P/E: no children/partnership/other study or work situation; NC/D/FS: no children/divorced/full-time studying; NC/D/W: no children/divorced/working; NC/D/E: no children/divorced/other study or work situation; C/S/FS: children/single/full-time studying; C/S/W: children/single/working; C/S/E: children/single/other study or work situation; C/P/FS: children/partnership/full-time studying; C/P/W: children/partnership/working; C/P/E: children/partnership/other study or work situation; C/D/FS: children/divorced/full-time studying; C/D/W: children/divorced/working; C/D/E: children/divorced/other.

Table 4 separately for the theory-driven and data-driven approach. It is noteworthy that the results of data-driven and theory-driven analyses were quite similar; a fact that has been pointed out by many others using the OM algorithm (e.g. Pollock, 2007). Careful definition of theory-driven costs was more crucial to maintain the most distinctive groups, *Singles with slow career* and *Slow starters*, as separate. They were easily captured with data-driven costs. However, theory-driven costs simplified and clarified the clustering results.

The dendrograms and the goodness-of-fit indices (Table 4) clearly supported the six-class solution with theory-driven cost matrices. Solutions with more clusters revealed smaller differences in timing of the events but the main differences in the simultaneous analysis of the three life domains can be seen in the six-cluster solution. Consequently, the six-class solution based on theory-driven cost matrices was selected as the *final solution for which more detailed results are reported*. It explained 45% (pseudo $R^2$) of the total variability of the multidimensional life sequences. This means that 55% of the total variability in the sequences is due to within-cluster variability. Fig. 3a and b shows the state distribution plots separately for the six clusters (pathways) and the mean times spent in each state.

The first cluster, "*Fast starters*" (15%), typically entered into a steady partnership soon after starting university studies and often made the transition to parenthood during university studies. The members of this cluster also moved earlier than the average to full-time employment and were unlikely to begin working life as singles and without children.

The second cluster "*Fast partnership and late parenthood*" (15%), consisted of those who started partnership early, already during their university studies. The members of this cluster made the transition from studying to working in average time but moved relatively late to parenthood.

In the third cluster, "*Career and family*" (24%), the life transitions were typically anchored in graduation from university. After moving to working life after graduation, the first partnership (co-habitation or marriage) was formed soon and was unlikely to break-up. The most typical state for the members of this cluster was first "no children, single and full-time studying" and then after the transition to working life "children, partnership, and full-time employment".

The members of the fourth cluster, "*Career and unsteady partnerships*" (15%), typically entered into their first partnership early, while they were still studying. Even though they lived most of the time in a partnership, they experienced repeated break-ups during the follow-up. Individuals characterized by this transitional pathway moved to full-time employment early and were unlikely to have children.

The fifth cluster "*Slow starters*" (19%), consisted of those who had prolonged their university studies, formed their first partnership late and typically had children late if at all.

This pathway was characterized by late, if any, experience of the key life transitions.

Those in the sixth cluster, "*Singles with slow career*" (12%), remained single during the whole follow-up. Also the transition from full-time study to employment occurred later than average.

The "*Slow starters*" and "*singles with slow career*" remained somewhat longer in their childhood home than those in the other clusters, spent longer than average in the state "rented flat", and experienced home ownership particularly late if at all. In turn, the "*Fast starters*" and those with "*Fast partnership and late parenthood*" experienced home ownership earlier than the members of other clusters.

Table 5 gives a more detailed description of the clusters: characteristics, most common state combinations, and typical and atypical state transitions. The results for typical and atypical state transitions (Table 5) determined by Chi-squared tests, revealed that for the pathways *Fast starters, Fast partnership and late parenthood, and Career and unsteady partnerships*, there were significantly fewer transitions to employment before forming a partnership than in the other three pathways. Partnerships were formed already during the university studies, and they were relatively stable, except in cluster *Career and unsteady partnerships*. They had significantly more break-ups than other pathways, whereas the opposite was true for the pathway *Career and family*.

The index plots in Fig. 4 show in more detail the individual differences across the clusters. The broad picture seen in the index plots corresponds to the cluster formation in the dendrograms (not shown here); the last distinguishing factor when merging individuals to the final two clusters 1, 2, 3 and 4, 5, 6 is based on the timing of having children or not. Within these two larger clusters, the previous distinguishing feature is the timing and stability of partnerships, and previous to that the timing to entering working life. In all clusters, there are singletons that are not representative of to any cluster.

### 7.4. Diversity of clusters

Fig. 5a shows the overall entropy values, and Fig. 5b the entropy values for the six clusters from 1991 to 2008. At the beginning, entropy was highest in clusters 1, 2 and 4 indicating early formation of partnerships and for cluster 1 also parenthood during the university studies. Members of clusters 3, 5 (*Slow starters*) and 6 stayed longer in the baseline status 'NC/S/FS' corresponding to 'no children/single/full-time study'. Towards the sixth or seventh year of university studies, around year 1998, entropy is increased in all clusters reflecting more individualized

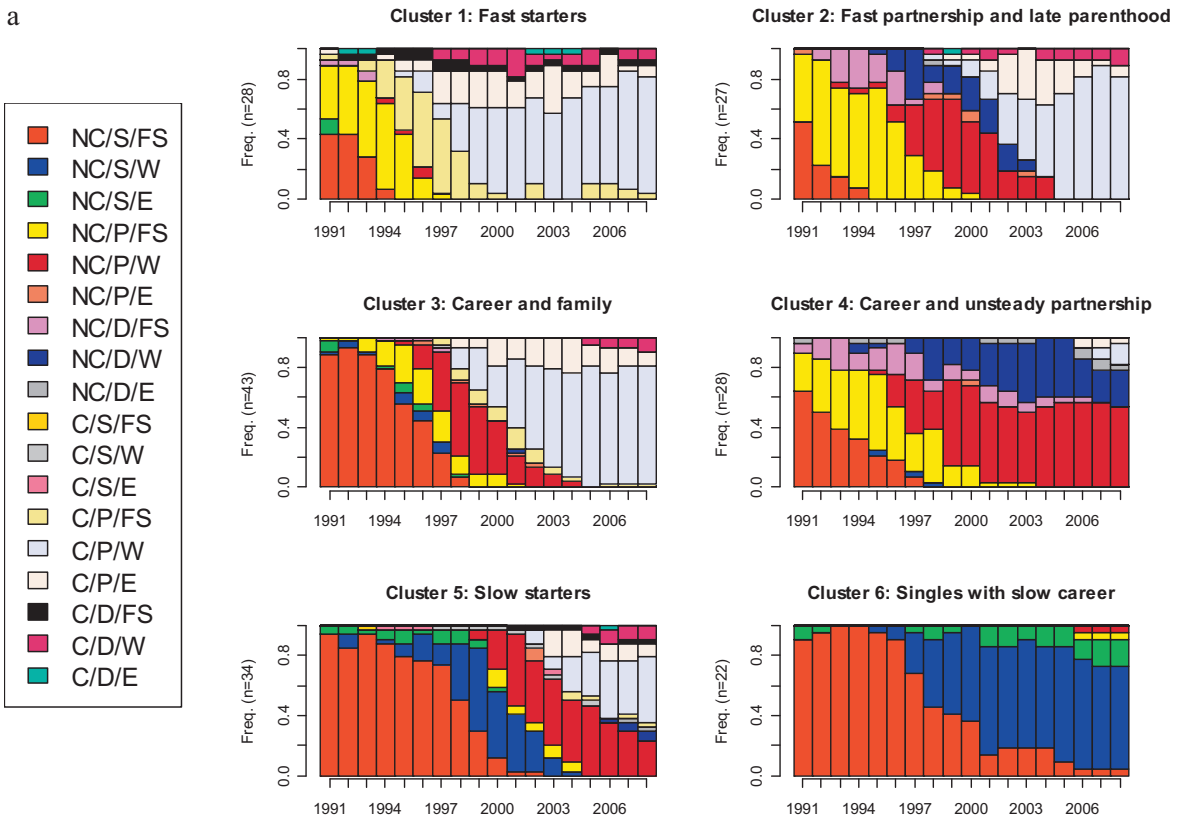


**Fig. 3.** (a) State distribution plots of the different pathways in the six clusters. (b) Mean times spent in each state within each cluster. *Note*. NC/S/FS: no children/single/full-time studying; NC/S/W: no children/single/working; NC/S/E: no children/single/other study or work situation; NC/P/FS: no children/partnership/full-time studying; NC/P/W: no children/partnership/working; NC/P/E: no children/partnership/other study or work situation; NC/D/FS: no children/divorced/full-time studying; NC/D/W: no children/divorced/working; NC/D/E: no children/divorced/other study or work situation; C/S/FS: children/single/full-time studying; C/S/W: children/single/working; C/S/E: children/single/other study or work situation; C/P/FS: children/partnership/full-time studying; C/P/W: children/partnership/working; C/P/E: children/partnership/other study or work situ; C/D/FS: children/divorced/full-time studying; C/D/W: children/divorced/working; C/D/E: children/divorced/other.

b Mean times spent in the states within each cluster.

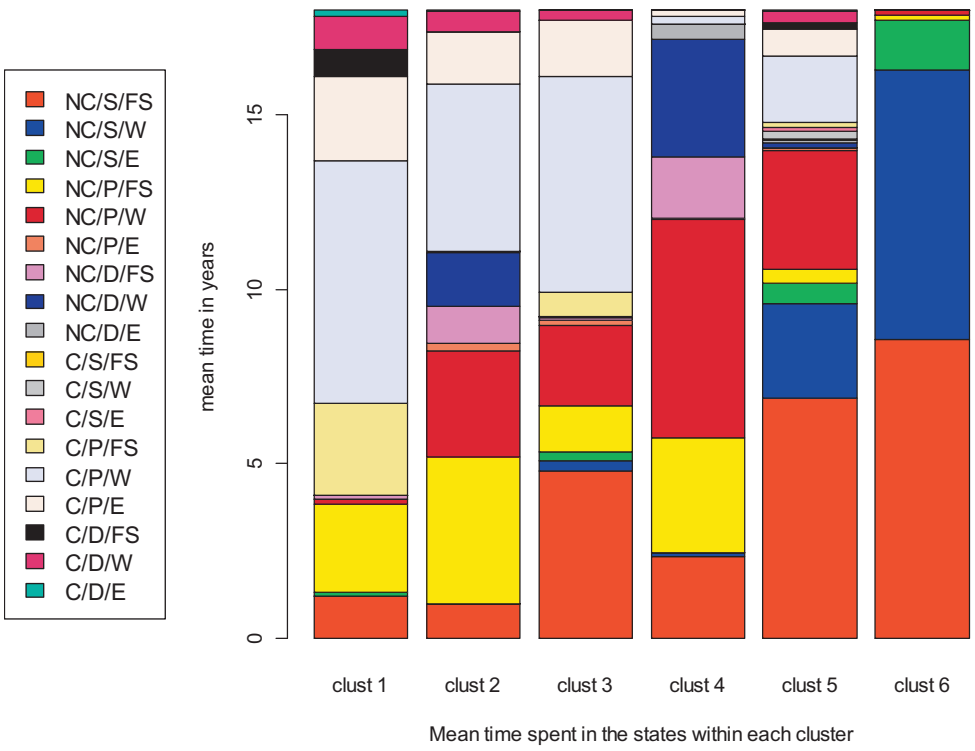


Fig. 3. (*Continued*).

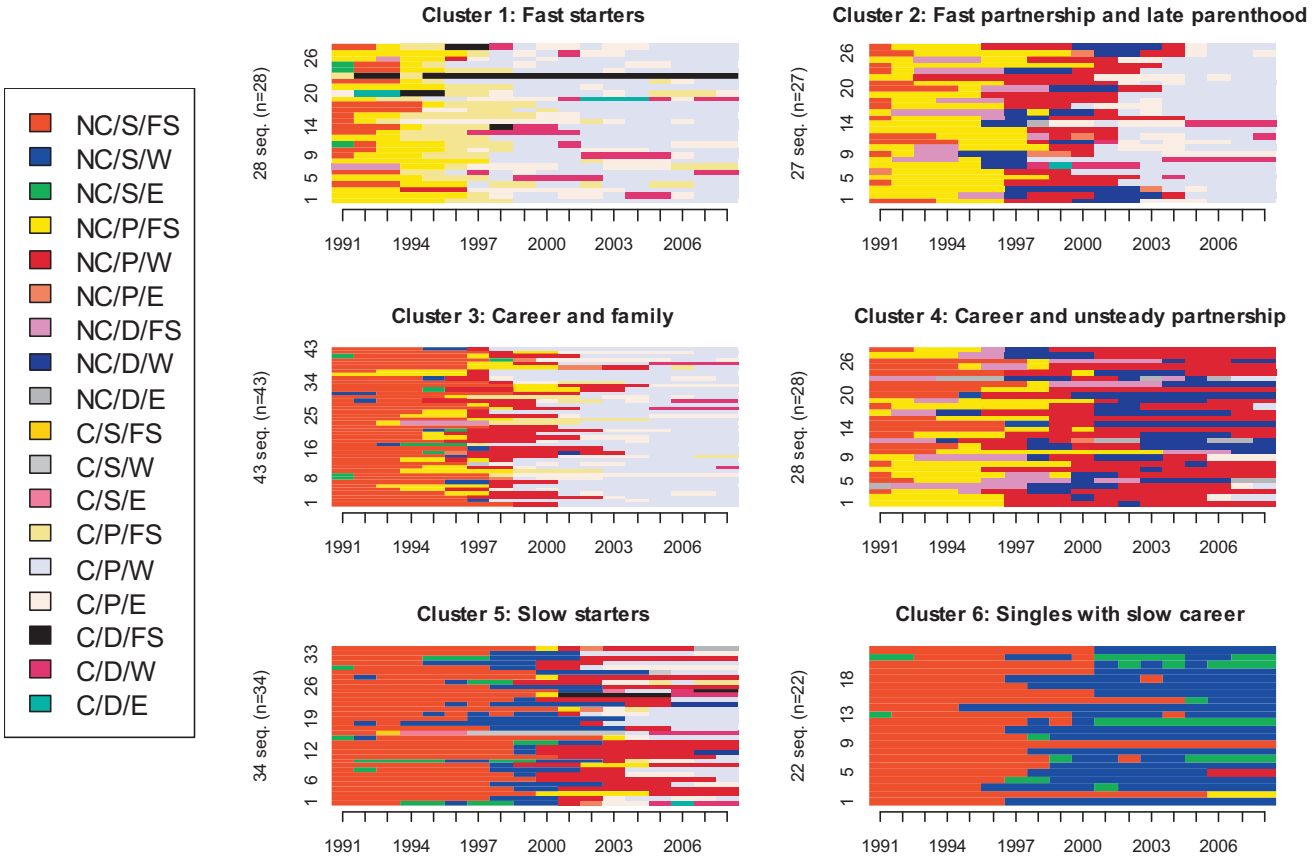


**Fig. 4.** Index plots of multidimensional sequences, grouped according to cluster index.

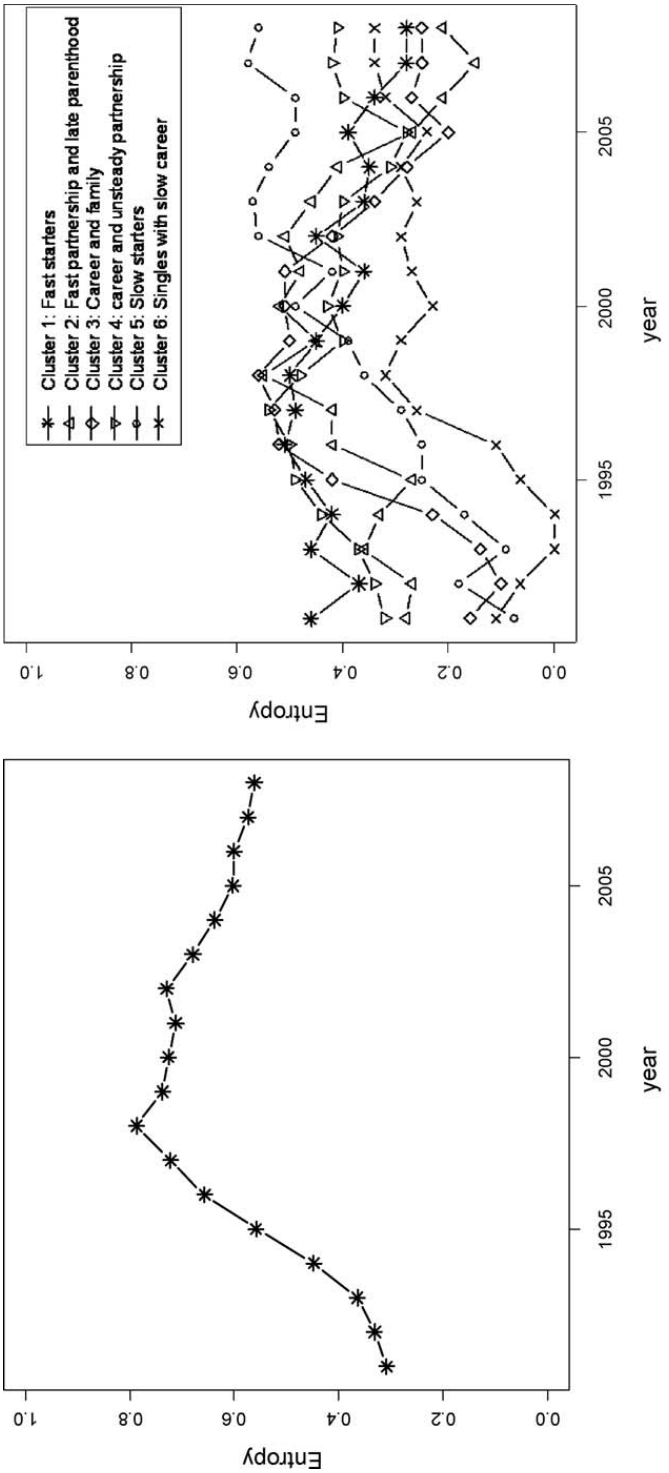


**Fig. 5.** (a) Multidimensional entropy for the whole sample. (b) Multidimensional entropy separately for different pathways.

choices in all the life domains studied. For *Singles with slow career*, the only change relates to transition to working life after studies, and thus the increase in entropy occurs later than in the other clusters. By the end of the follow-up, clusters 1, 2 and 3 had in turn the lowest entropy; the members of the *Career and family* pathway had now settled into family and working life in a somewhat slower pace than the members in the *Fast starters* and *Fast partnership and late parenthood* pathways. As for *Slow starters*, increasing entropy by the end of the follow-up indicates that entering working life occurred later than for others, but especially that partnerships were formed later with respect to the university studies.

### 7.5. Differences in background factors

Table 6 shows descriptives of the background factors (i.e., gender composition, age at the beginning of the follow-up, parents' education, grade point average at the end of senior high school (GPA), and of outcome variable life satisfaction). Next, we compared the multidimensional pathways in terms of background factors. The cross-tabulation results showed that gender ($\chi^2(5, N = 182) = 1.59$, $p = .90$, see Table 6 for the percentages within each cluster) was not associated with pathway membership. However, the majority of participants overall (78%) were females, so our data cannot reveal the differences even they exist. With regard to age at the beginning of the follow-up, the univariate analysis of variance (1-ANOVA, see means and standard deviations in Table 6) showed that the mean ages were not equal across the various pathways ($F(5, 174) = 3.18$, $p < .01$, *partial* $\eta^2 = .08$). Further analyses revealed that the *Fast starters* were somewhat older than those on the *Slow starters* ($p < .01$, Tukey). As expected, in a data set of university students, there were no differences between the clusters in school grades at the end of senior high school (before entering university) or parents education (Table 6).

### 7.6. Differences in subsequent life satisfaction

As the final step, we evaluated the results of the pathway typology by comparing the perceived life satisfaction of the participants at the end of the follow-up, in 2008 when they were on average aged 38 years. The results of the univariate analysis of variance (1-ANOVA) showed that there were significant differences in life satisfaction ($F(5, 174) = 6.06$, $p < .001$, *partial* $\eta^2 = .15$) among the pathways, so that the members of *Career and family* and *Fast partnership and late parenthood* were more satisfied with their life than the members of *Singles with slow career* ($p < .05$, Tukey) and *Career and unsteady partnerships* pathway ($p < .05$, Tukey). The results from comparing *Slow starters* with *Fast starters* ($p < .10$, Tukey) and *Singles with slow career* ($p < .10$, Tukey) were indicative only and may depend on the small size of the clusters.

## 8. Discussion

This 18-year longitudinal study investigated the kinds of transitional pathways to adulthood that former university students in Finland followed in the life domains of partnership, parenthood, residence, educational and employment. The results revealed considerable heterogeneity in their pathways, which varied with respect to three key dimensions: the life domains that played a key role in the pathway patterns, the timing of the transitions, and the stability and change of the transitions over time. This study illustrated how sequence analysis can serve as a useful technique for investigating diversity and heterogeneity in transition pathways.

### 8.1. Types of transitional pathways

We identified six theoretically meaningful transitional pathways ("clusters" in the analysis) to adulthood among university students in the combinations of career, partnership, and parenthood life domains. *Career and family* (24%) is a traditional transitional pathway in which all the key life transitions to adulthood occur in a "normative" or expected order. It is intriguing that even though it was the most common pathway, only about one fourth of the participants followed it, typically anchoring their other life transitions to graduation from the university. Those on the *Career and family* pathway entered into a steady partnership soon after graduation from the university, then worked for a few years and then had children. This pathway was similar to the one identified by Garrett and Eccles (2009), Osgood et al. (2005), and Martin et al. (2008), which they described as traditional pathway to adulthood. Consequently, our results revealed that many young adults show so-called traditional pathways to adulthood, although considerable heterogeneity was also evident in transitional pathways to adulthood among Finnish university students.

Those on another pathway, the *Slow starters* (19%), typically spent a long time at university, remained in their parents' home for a long time, were late in entering into a partnership, and had no children. This pathway could also be termed as a moratorium (Marcia, 1980; see also Martin et al., 2008; Osgood et al., 2005): both career and family transitions were postponed, and these young people appear to have been in a kind of prolonged adolescence without the responsibilities attached to adulthood (Arnett, 2000; Kroger, 2003).

Another slow transitional pathway, *Singles with slow career* (12%), comprised former university students who remained single for the whole of the follow-up period. It was not only *Singles with slow career* had difficulties in the key developmental task of forming and committing to a partnership, but also those on this pathway were slow in starting their work career. This pathway reflects the "educated singles" cluster identified by Osgood et al. (2005). There is however a need for further follow-up of these young people with regard to their transitional pathways around the age of 40, inherent in which are deadlines related to biological reproduction for women, and thus some urgency in the domains of partnership and possible parenthood becomes evident.

*Fast starters* (15%), in turn, were characterized by fast transition after entering university in all of the key life domains – entering into a steady partnership early, moving

earlier than the average from studying at the university to full-time employment, and finally an early move from partnership to parenthood. Those on this transitional pathway, however, were somewhat older at the beginning of the follow-up than those of the *Slow starters* pathway. In other words, it is possible that fast key transitions of this group reflected the fact that urgency of fulfilling key developmental tasks increases with age. Our results among university students also support earlier findings reported by Garrett and Eccles (2009), Osgood et al. (2005), and Martin et al. (2008), all of whom identified a pathway that could be termed as 'fast (or early) starters'.

Fifteen percent of the participants followed a transitional pathway we called *Career and unsteady partnerships*. They typically entered into a partnership already during their university studies but then experienced several partnerships and break-ups during the 18-year follow-up. Those in the *Career and unsteady partnerships* pathway moved early from studying to employment and were full-time employed for most of the time. However, they typically had no children. The *Career and unsteady partnerships* pathway was thus productive in working life but apparently those in it had difficulties related to interpersonal relations and reproduction (see also Kokko, Pulkkinen, & Mesiäinen, 2009).

Similarly, 15% of participants were called *Fast partnership and late parenthood*. Those on the *Fast partnership and late parenthood* pathway started their partnership early, already during their university studies. However, they moved relatively late to parenthood. In turn, those on this pathway made the transition from studying to employment in average time. This pathway was quite similar to the *Career and family* pathway, but *Fast partnership and late parenthood* started partnership already during their university studies.

We also found differences in the transitional pathways related to subsequent life satisfaction, and thus our results contribute to the life course research on personal life satisfaction. We found that higher levels of well being were associated with earlier graduation and/or the successful completion of multiple transition demands. Although some role configurations may facilitate optimal functioning in some domains, there may be parallel routes to well-being or differential costs and benefits of alternate role timing, sequences, and statuses. Our results revealed that those on the *Career and family* and *Fast partnership and late parenthood* pathways were more satisfied with their life at the end of the follow up than those in the *Singles with slow career* and *Career with unsteady partnerships* pathways. *Fast starters* were also somewhat more satisfied than *Slow starters*, and *Slow starters* were somewhat more satisfied than *Singles with slow career*. These results corroborate earlier findings showing that the on-time achievement of developmental tasks and fulfilling age-graded expectations in undertaking various life tasks are related to higher life satisfaction (Havighurst, 1948; Neugarten, 1979). These results also are in agreement with Schulenberg et al. (2004), who found that successful tackling of developmental tasks was closely tied to high levels of well-being in young adulthood (see also Brunstein et al., 1999; Pinquart & Silbereisen, 2004). The findings are also in line with those reported by Diener et al. (2000), suggesting that higher life satisfaction is related to being married rather than being single. The findings suggest that fast transitions are associated with high levels in life satisfaction, highlighting the need to conceptualize successful transitions to adulthood in broader terms, comprising variations in pathways and life goals.

The results did not yield any evidence of gender differences with regard to the transitional pathways, which is in accordance with the findings of Csikszentmihalyi and Schneider (2000). We were not, however, in a position to investigate gender differences in any detail because the vast majority of the participants were women. Similarly, we found no gender differences in school grades at the end of the senior high school (before entering university) or parents' education. However, we have to bear in mind that our data are based on university students.

### 8.2. Transitional pathways in the various life domains

One aim of the present study was to examine at what age and in what proportions young people experienced life transitions in the separate life domains of residence, partnership, parenthood and career during the 18-year follow-up period starting when they began their studies. In the *residence domain*, it seems that most young people move early from the parental home and do not postpone independent living, which in turn is typical in many central and south European countries (Salmela-Aro & Helve, 2007). For example, at the mean age of 26 only 3% of the participants were living with their parents. It is in line with the typical statistics in Finland (findikaattori). One reason for this timing may be financial, as Finnish society supports the early move to independent living. In terms *of partnership*, the majority of the subjects were either cohabiting or married for most of the follow-up time period: about 25% of them were single or postponed the transition to partnership. *Parenthood* was typically postponed in that, on average, the participants had their first child at the mean age of 29 being in line with the statistics in Finland (findikaattori). As for *educational and vocational career*, it appears that most university students first finish their studies and graduate at a mean age of 29, and then move to full-time employment. This finding corroborates the results of earlier studies (i.e., Schoon et al., 2005) in showing that in Finland it is rare to be employed part-time rather than full time.

### 8.3. The key characteristics of the transitional pathways

The transitional pathways identified in the present study vary with respect to three key dimensions. The first of these concerned the life domains that played a dominant role. In some cases, such as on the *Career and unsteady partnership* pathway, one life domain was dominant whereas in others transitions in both career and interpersonal life proceeded in tandem, such as on the *Career and family* pathway. Secondly, there was variation in the timing of the transitions. The *Fast starters* pathway was characterized by early and fast transitions in all life domains in

relation to the starting time of university studies, whereas late, off-time or postponed transitional timing characterized the *Slow starters* and the *Singles with slow career*. Those on the *Career and family* pathway, in turn, were typically on-time in their transitions to adulthood (Wrosch & Freund, 2001). Finally, the pathways varied in terms of stability and change over time. There was stability following major role transitions on some, such as *Career and family* and *Fast starters*, whereas instability characterized the *Career and unsteady partnerships,* especially with regard to the domain of partnership.

According to Levinson (1978), an individual's life course includes both structure-building and stable phases, and structure-changing periods involving change and reorganization. Our findings appear to suggest that Finnish university students do not show a clear, overall pattern of stability and change in this respect. They rather split into several groups whose life course varies substantially. Some of them, such as those in the *Fast starters* and *Career and family* pathways, seemed to go through stable stages following the major life transitions. They may, of course, experience major "structure-changing" stages later on in life. By contrast, like those in the *Career and unsteady partnerships* pathway, seemed to experience continuous structure change in their interpersonal relations. It has also been suggested that during the age of 25–40 a developmental period occurs characterized by expansion of responsibilities and commitments within roles and the push for achievement of fundamental life goals (Arnett & Taber, 1994; Clare & Wheaton, 2005). It is in this stage that most of the differences in work and family trajectories emerge most clearly. Based on the distribution plots for multidimensional life sequences, our results support this suggestion.

Overall, about half of the academic sample turned out to be on-time or early starters in their main developmental tasks (Wrosch & Freund, 2001) and related role changes, and successfully made the two major life transitions in the areas of production (career) and reproduction (family). However, in the majority of cases the process was rather slow, off-time or even postponed. This timing is consistent with the findings of Arnett (2000), suggesting that young people postpone the transition to adulthood. Our results also support the notion of an emerging polarization between those who invest in further education, taking the slower route to adulthood involving prolonged studying and the delayed adoption of adult roles, and those who follow the fast track (Jones, 2002). Overall, from our results it seems that 30% of young people go through a period of emerging adulthood (Arnett, 2000), a protracted trying-out period.

Our aim, however, was to find the best clustering when considering the developmental tasks derived from the theory, so this result is informative in itself by indicating that not even half of the variability in university students' life trajectories can be explained with this information only.

### 8.4. Limitations and future directions

The following limitations should be taken into account in any attempt to generalize the results of the present study. First, the sample is not a random sample. The sample consisted of university students and thus was not representative of the general population of young adults. For example, those in vocational schools might show different patterns: previous research has shown that the higher the level of education, the more stable the career line later on (Feldt, Kokko, Kinnunen, & Pulkkinen, 2005). Second, the sample consisted of Finnish students. Several features of Finnish universities, such as a higher age at entry into university, entering to a major, tuition-free studies, and the difficulty in gaining admission, may mean that some of the results would have been different in countries with a different education system. Third, females were overrepresented in our sample as our sample consisted of students in social sciences. Consequently, in the future it would be important to take a more gender-balanced sample and also to compare different birth cohorts in order to examine the role of historical time. Fourth, even though the present study compared the transitional pathways in respect of life satisfaction, there is a need to examine the role of psychological factors such as temperament, personality traits, personal goals and coping, and to include not only overall life satisfaction, but also domain-specific satisfaction as outcome measures. Fifth, there are some methodological limitations that need to be considered. We obtained the information pertaining to the period between 1991 and 2008 using the Life History Calendar (LHC) method. It is possible that this long time span affected the participants' memories. However, we do not consider this to be a serious flaw for three reasons. First, most of the transitions under investigation are generally easy to remember, such as the birth of a child, home ownership, marriage, and graduation from university. The point of entry into the labour market may have been the most difficult to recall. Secondly, we had prospective data on these life transitions, which we utilized for securing the validity of the LHC data. Finally, previous studies confirm the reliability of the LHC method in producing accurate information (Caspi et al., 1996; Kokko et al., 2009).

### 8.5. Summary

We found considerable heterogeneity in transitional pathways to adulthood among Finnish university students across an 18-year follow up. We identified six pathways: *Career and family* (24%) which is a traditional transitional pathway in which all the key life transitions to adulthood occur in a "normative" or expected order; *career and unsteady partnerships*, *Slow starters* (19%) in which both career and family transitions were postponed; *Singles with slow career* (12%) included persons who had difficulties in the main key developmental task of forming and committing to a partnership but also were slow in starting their work career. Those in *Fast starters* (15%) were characterized by fast transition in all of the key life domains, entering into a steady partnership early, moving earlier than the average from studying at the university to full-time employment, and finally moving early from partnership to parenthood. Those in *Career and unsteady partnerships* moved early to employment and entered into

a partnership already during their university studies but then experienced several partnerships and break-ups. Persons in the *Fast partnership and late parenthood* pathway started their partnership early, already during their university studies, but moved relatively late to parenthood. The pathways varied with respect to three key dimensions: the domains of life that played a dominant role in the transitional patterns, the timing of the transitions that were typical of the pathways, and the stability of the first transitions. This study illustrated how sequence analysis can serve as a useful technique for investigating diversity and heterogeneity in transition pathways. Our results revealed that those on the *Career and family* and *Fast partnership and late parenthood* pathways were more satisfied with their life at the end of the follow up than those in the *Singles with slow career* and *Career with unsteady partnerships* pathways.

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